

PISCES

BY

ALBERT GÜNTHER, M.A., M.D., PH.D., F.R.S.

General Works.

BLEEKER, P. Atlas Ichthyologique des Indes Orientales Néerlandaises. See Zool. Rec. i. p. 134, ii. p. 163, vi. p. 123, vii. p. 82.

In the year 1871, livr. 24 only has been issued, containing the text to the *Scombresocidæ*, and plates representing part of the *Pleuronectidæ* and *Clupeidæ*.

DARWIN, C. The Descent of Man, and Selection in relation to Sex. London: 1871. 16mo, vol. i. pp. 423, vol. ii. pp. 475, with numerous woodcuts.

Part of chapter xii. (pp. 1-24) contains an account of the best-authenticated cases of sexual differentiation in fishes, some of which will be referred to in the special part of this Record. [Cf. *suprà*, pp. 1, 2, 25-27, 77.]

Anatomical and Physiological Publications.

BERT, P. Sur les phénomènes et les causes de la mort des animaux d'eau douce que l'on plonge dans l'eau de mer. Compt. Rend. 1871, lxxiii. pp. 382, 464.

GEGENBAUR, C. Ueber die Kopfnerven von *Hexanchus* und ihr Verhältniss zur Wirbeltheorie des Schädels. Jena. Z. f. Med. u. Ntrw. 1871, pp. 497-560, Taf. 13. [On the cerebral nerves of *Hexanchus*, with reference to the cerebral theory of the skull.]

JOURDAIN, S. Matériaux pour servir à l'histoire anatomique du Poisson lune (*Orthogoriscus mola*). Compt. Rend. 1871, lxxiii. pp. 1225-1229.

Chiefly on the portal venous system of the kidneys.

MACDONALD, —. On the homologies of the vertebral skeleton 1871. [VOL. VIII.]

- in Osseous Fishes and in Man. P. R. Soc. Edinb. 1871, pp. 472-474.
- MIVART, ST. G. On the Vertebrate Skeleton. Trans. Linn. Soc. 1871, xxvii. pp. 369-392, pl. 53. [See p. 4.]
- PANCERI, P. Intorno alla luce emanata dal grasso. Rendic. Acc. Napol. 1871, April.
- POUCHET, G. Sur des Cyprins monstrueux (*C. auratus*) venant de Chine. Robin's Journ. Anat. 1870-71, pp. 561-569, pl. 17.
- SCHULZE, F. E. Ueber die Sinnesorgane der Seitenlinie bei Fischen und Amphibien. Arch. mikrosk. Anat. vi. p. 62, pls. 4-6. [On the organs of sense in the lateral line in Fishes and Amphibians.] Abstract in Arch. Zool. Expér. et Génér. i. 1872, pp. i-iv.

GENERAL NOTES AND FAUNÆ.

M. PANCERI presented to the recent congress of naturalists and physicians at Turin the result of some investigations as to the cause of phosphorescence in animals, and especially in fishes. He has come to the conclusion that the cause of this phenomenon is the slow oxidation of fat, which he finds to be always present when the phosphorescence is observed in animal substances. In the case of fish the oxygen of the air very readily penetrates the skin, and acts upon the subcutaneous adipose tissue. The phenomenon is promoted by placing the phosphorescent substance in oxygen, but is entirely arrested by its immersion in carbonic acid, fresh water, alcohol, or any solution not containing oxygen. Phosphorescence usually commences immediately after death, and continues until decomposition sets in with disengagement of ammonia, when it invariably ceases. Rendic. Acc. Napol. 1871, April.

Scandinavia. Herr MALM has added three species to the fauna of Scandinavia, viz. *Trigla pini*, *Pelamys sarda*, and *Gobius microps*, which he describes, (Efv. Sv. Akad. 1870, pp. 825-852.

Ireland. Mr. W. ANDREWS has reported on his recent observations of fishes on the Irish coast. He has noticed, among others, *Engraulis encrasicolus*, *Trichiurus lepturus*, *Centrolophus pompilus*. P. Dubl. Soc. vi. pp. 32-35, 68-71.

Pomerania. 'Die Wirbelthiere Pommerns,' by T. HOLLAND. Stolp: 1871. 8vo, pp. 119. The author enumerates 92 fishes. A work of local interest.

Adriatic. Professor SCHMARDA has published a series of articles in the 'Österreichischen Revue' on the "Maritime Production der österreichischen Küstenländer." In the first

article (1864, vi. pp. 69-105) the author makes historical and introductory remarks on the efforts made by Austria in developing the resources of power and wealth offered by her situation on the Adriatic. He shows that, compared with other nations, Austria is far behind with regard to the income derived from marine productions. Yet, of the 440 kinds of fishes known to inhabit the Adriatic, about 100 are valuable food-fishes, although only 40 are esteemed for the table. He then enters into a consideration of the measures which ought to be adopted for an improvement of the fisheries. In the second article (1865, i. pp. 108-141) the physical features of the Venetian coast, and the instruments used by the Venetian fishermen, are described. The fisheries of the various towns of this district have gradually declined. The third article (1865, iii. pp. 66-99) treats of the fisheries of the coast of Görz; and the fourth (1866, pp. 50-117) of those of Istria. A detailed account is given of the fisheries of Sardines, Anchovies, Mackarels, Tunnies, &c., and of their preparation for the trade. The author calculates the whole produce of Istrian fisheries at 52,000 hundredweights, of which 24,000 are salted, requiring 6000 hundredweights of salt. The fifth and sixth articles (1867, ix. pp. 45-89) contain reports on the fisheries of the Croatian and Dalmatian coasts.

Algeria. MESSRS. PLAYFAIR and LETOURNEUX have published a "Memoir on the Hydrographical System and the Freshwater Fish of Algeria" in A. & M. N. H. 1871, viii. pp. 373-394, in which they give a highly instructive account of the hydrographical features of the various parts of Algeria, peculiar in this respect, that a portion of the waters return to the clouds without passing through the sea, or circulate in vast subterranean lakes. The authors describe or notice 21 freshwater species, of which 16 are found in the Tell, 7 on the High Plateaux, and 4 in the Sahara. Five are peculiar to Algeria. Very singular is the presence in fresh water of several marine forms.

United States. "A partial synopsis of the Fishes of the Fresh Waters of North Carolina," by E. D. COPE. P. Am. Phil. Soc. 1870, pp. 448-495. The author describes or mentions 81 species, besides others from various parts of the United States. He characterizes the river-systems of North Carolina, and tabulates the species found in each.—"On some Etheostomine Perch from Tennessee and North Carolina," by E. D. COPE, P. Am. Phil. Soc. 1870, pp. 261-270.—The notes on freshwater fishes of New Jersey by C. C. ABBOTT (see Zool. Record, vii. p. 83) have been continued in Amer. Nat. 1871, iv. pp. 717-720.—"On the Food and Habits of some of our Marine Fishes," by A. E. VERRILL. Amer. Nat. 1871, v. pp. 397-400.

West Indies. Prof. COPE has reported on some collections made at St. Martin's, St. Croix, and St. Christopher's. He enumerates the species contained in these collections, and describes

those which he regards as new, 23 in number. Tr. Am. Phil. Soc. xiv. pp. 461-483, with 8 woodcuts.

Upper Amazons. Prof. COPE has reported on a collection from Pebas. Twenty-two species are described as new. P. Am. Phil. Soc. 1870, pp. 559-570.

Patagonia. 'Notes on the Natural History of the Strait of Magellan and West Coast of Patagonia, made during the Voyage of H.M.S. 'Nassau,' in the years 1866-69,' by R. O. CUNNINGHAM (Edinb. 1871, 8vo, pp. 517), contain numerous observations on the occurrence of fishes collected by the author on the shores of the southernmost parts of South America.—These observations are collected in a separate paper, "Notes on the Reptiles, Amphibia, Fishes, &c. obtained during the Voyage of H.M.S. 'Nassau,'" in Trans. Linn. Soc. xxvii. 1871, pp. 465-473.

Africa. M. DE BRITO CAPELLO has commenced a list of the species from Madeira, the Azores, and Portuguese possessions in Africa, which are contained in the Lisbon Museum. Journ. Sc. Lisb. 1871, pp. 194-202, 280-282.

Red Sea. Dr. KLUNZINGER has published the second part of his "Synopsis der Fische des Rothen Meers" [see Zool. Record, vii. p. 84] in Verh. z.-b. Ges. Wien, 1871, pp. 441-688.—A systematic index of all the fishes of the Red Sea is added, *ibid.* pp. 1353-1368.

India. Mr. F. DAY has published the following papers:— "Monograph of Indian Cyprinidæ," J. A. S. B. 1871, pp. 95-142, 277-367, with 4 plates. "On Hamilton Buchanan's original Drawings of Fish in the Library of the Asiatic Society of Bengal," P. A. S. B. 1871, pp. 195-209. "On the Freshwater Siluroids of India and Burmah," P. Z. S. 1871, pp. 703-721.—"Report on the Fish and Fisheries of the Fresh Waters of India," Simla, 1871, 8vo, pp. 49. The subject is divided under the five following heads:—1. Does a wasteful destruction of freshwater fish exist at present in India and Burmah? 2. The fishermen of India and Burmah. 3. The fisheries and how they are worked. 4. The fish that are eaten. 5. Fish in an economic point of view, including remarks on the effects of a fish diet.

Celebes. Dr. GÜNTHER has described 13 new species from collections made by Dr. A. B. Meyer at Menado. P. Z. S. 1871, pp. 652 *et seqq.*

Polynesia. Dr. GÜNTHER has described 16 new species from collections received from the Godeffroy Museum. P. Z. S. 1871, pp. 652 *et seqq.*

Australia and New Zealand. Mr. KREFFT has published a pamphlet, 'Australian Vertebrata, Fossil and Recent' (8vo, pp. 96: place and date of publication?), containing a nominal list of 439 fishes of the coasts and fresh waters of Australia and New Zealand.—Dr. GÜNTHER has described 10 new species from

this region. He draws attention to the surprising fact that a number of common European marine fishes, which hitherto have never been met with between the tropics, reappear in temperate seas of the southern hemisphere. P. Z. S. 1871, pp. 653 *et seqq.*

Prof. E. D. COPE has read a paper before the American Association for the Advancement of Science, published in Amer. Natur. 1871, v. pp. 579-593, and in Tr. Am. Phil. Soc. xiv. pp. 445-461, and entitled "Observations on the systematic relations of the Fishes." The author having purchased Prof. Hyrtl's collection of 800 skeletons of fishes, and made it the base of his researches into the osteological characteristics of the class, has recognized the necessity of breaking up Müller's subclass of Ganoids, and of introducing several other radical changes into the system, as will be seen from the following arrangement proposed by him:—

- I. Subclass HOLOCEPHALI.
- II. " SELACHII.
- III. " DIPNOI.
- IV. " CROSSOPTERYGIA.
- V. " ACTINOPTERI.
- A. Tribe CHONDROSTEI.
- 1. Order *Selachostomi* (Spatularia).
- 2. " *Glaniostomi* (Sturgeon).
- B. Tribe PHYSOSTOMI.
- * A præcoracoid arch.
- † A coronoid bone.
- 3. Order *Ginglymodi* (the bony Gar).
- 4. " *Halecomorphi* (Amiidae).
- †† No coronoid bone.
- 0. No symplectic bone.
- 5. Order *Nematognathi* (Catfishes, descendants of the Sturgeons; 3 families: Siluridae, Aspredinidae, Hypophthalmidae).
- 6. Order *Scyphophori* (Mormyri and *Gymnarchus*).
- 00. Symplectic present.
- 7. Order *Plectospondyli* (Catostomidae, Cyprinidae + Cobitidae, Sternopygidae, Characinidae + Erythrinidae).
- 8. Order *Isopondyli* (Notopteridae, Hyodontidae + Albulidae + Elopidae, Aulopidae + Coregonidae + Lutodiridae, Sauridae + Gonorhynchidae, Alepocephalidae + Salmonidae, Chirocentridae + Clupeidae, Osteoglossidae, Heterotidae + Galaxiidae).
- ** No præcoracoid arch.
- † Scapular arch suspended to cranium.
- 0. A symplectic.
- 9. Order *Haplomi* (Esocidae, Umbridae, Cyprinodontidae + Hypsæidae).
- 10. " *Glanencheli* (Electric Eel).
- 00. No symplectic.
- 11. Order *Ichthyocephali* (Java Eels).

- †† Scapular arch free behind the cranium.
 O. Præoperculum.
12. Order *Holostomi* (Symbranchi).
 13. „ *Enchelycephali* (Congridæ, Anguillidæ, Gymnothoracidæ).
 OO. Præoperculum wanting or rudimental.
14. Order *Colocephali* (Murænæ).
 C. Tribe PHYSOCLYSTI.
- * Scapular arch not suspended from the cranium.
15. Order *Opisthomi* (Mastacembelidæ).
 ** Scapular arch suspended from the cranium.
 † Ventral fins abdominal.
16. Order *Percesoces* (Ophiocephalidæ, Mugilidæ, Atherinidæ).
 17. „ *Syngnathi* (Scombresocidæ).
 18. „ *Hemibranchi* (Gasterosteidæ, Fistulariidæ, Centriscidæ, Amphisitidæ).
 19. „ *Lophobranchi*.
 †† Ventral fins thoracic or jugular.
20. Order *Pediculati* (Antennariidæ, Lophiidæ).
 21. „ *Heterosomata* (Flounders).
 22. „ *Plectognathi*.
 23. „ *Percomorphi* (Perch).
 a. *Anacanthini* (Gadidæ and Macruridæ).
 b. *Haplodoci* (Batrachidæ).
 c. *Scyphobranchii* (Uranoscopidæ, Gobiidæ, Blenniidæ, Gobiesocidæ, Cottidæ).
 d. *Epelasmia* (Acronuridæ, Chætodontidæ).
 e. *Rhegnopteri* (Polynemidæ).
 f. *Distegi* (Scombridæ, Xiphiadidæ, Trichiuridæ, Berycidæ, Percidæ, Sparidæ, Sciaenidæ, Pristipomatidæ, Triglidæ, Sillaginidæ, Carangidæ, Echeneidæ, Gerreidæ, Heterognathidæ).
 g. *Labyrinthici*.
24. Order *Pharyngognathi* (Embiotocidæ, Chromididæ, Labridæ, Scaridæ).

PALÆICHTHYES.

GANOIDEI.

Dr. LÜTKEN's paper on the classification and limits of Ganoids [see Zool. Rec. vi. pp. 125, 138] has been published in a translation in Ann. & Mag. N. H. 1871, vii. pp. 329-339.

Ceratodus. Dr. Günther's researches into the structure of this fish are contained in the following papers:—

1. Description of *Ceratodus*, a genus of Ganoid fishes recently discovered in Queensland, Australia. Proc. Roy. Soc. 1871, March 16, pp. 377-379 (Abstract of the Memoir No. 4).

2. *Ceratodus* and its place in the system. A. & M. Nat. Hist. 1871, vii. pp. 222-227, with two woodcuts (paddle of *Ceratodus* and *Acipenser*).

3. The new Ganoid Fish (*Ceratodus*) recently discovered in Queensland,

'Nature,' 1871, September and October, nos. 99, 100, 102. In this paper the author enters more especially into the reasons which induced him to unite Ganoids and Plagiostomes in one subclass, and adds some important details and corrections regarding the generative organs. From these three papers an account has been compiled by Prof. Troschel in Wieg. Arch. 1871, pp. 325-344*.

4. The complete memoir in Philos. Trans. ii. 1872, pp. 511-571, pls. 30-42. The separate reprints were issued in 1871 (November).

Acipenser. Dr. Knoch has made the important observation that young Sterlets (and probably all young Sturgeons) are provided with small deciduous teeth. Bull. Mosc. 1871, no. 1, p. 281, Taf. 6. fig. 7.

Acipenser sterletus. Dr. Knoch reports on a journey made to the Volga for the purpose of obtaining spawn of the Sterlet, and of attempting its acclimatization in other parts of Europe, adding some remarks on the early stages of its development. L. c. 1871, no. 1, pp. 254-289, Taf. 6.—On the same subject, A. Murray, P. Z. S. 1871, pp. 11-13.

Acipenser sturio. Its occurrence in the Rhine and Maine, by Noll, Zool. Gart. 1871, pp. 180-183.

HOLOCEPHALA.

Callorhynchus antarcticus. Egg figured by R. O. Cunningham, in 'Notes on the Natural History of the Strait of Magellan,' on a plate, p. 340.

PLAGIOSTOMATA.

Carcharias. Dr. Klunzinger (Verh. z.-b. Ges. Wien, 1871, pp. 655-662) describes six species from the Red Sea, one being new, *Carcharias ehrenbergii* (p. 661).

Loxodon macrorhinus occurs in the Red Sea. Klunzinger, l. c. p. 662.

Galeocerdo obtusus, sp. n., Klunzinger, l. c. p. 664, Red Sea.

Dürrhizodon elongatus, g. et sp. n., Klunzinger, l. c. p. 664, Red Sea: near *Thalassorhinus*.

Mustelus vulgaris and *lævis* from the Red Sea. Klunzinger, l. c. p. 668.

Lamna spallanzanii occurs in the Red Sea. Klunzinger, l. c. p. 669.

Chiloscyllium modestum, sp. n., Günther, P. Z. S. 1871, p. 654, pl. 54, Queensland.

Acanthias vulgaris taken in Falkland Sound and in the Strait of Magellan by Cunningham, Trans. Linn. Soc. xxvii. p. 473.

Torpedo. "Détermination de la durée de la décharge électrique chez la torpille," by Marey, Compt. Rend. 1871, lxxiii. pp. 958-961.

Torpedo sinus persici described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 677.

Raja. On sexual differences, Darwin, Descent of Man, ii. pp. 2, 6.

Urogymnus rhombeus, sp. n., Klunzinger, l. c. p. 683, Red Sea.

* The Recorder must express his thanks to Prof. Troschel for the care he has bestowed on the translation of these articles. In one or two cases only, later corrections stand now side by side with the first account, which renders these passages somewhat obscure.

- Trygon liocephalus*, sp. n., Klunzinger, l. c. p. 678, Red Sea.
Urolophus chilensis, sp. n., Günther, P. Z. S. 1871, p. 653, pl. 53.
Dicerobatis monstrum, sp. n., Klunzinger, l. c. p. 687, Red Sea.

TELEOSTEI.

ACANTHOPTERYGII.

PERCIDÆ.

- ✓ F. POEY. Genres des Poissons de la Faune de Cuba, appartenant à la famille *Percidæ*. Ann. Lyc. New York, x. 1871, pp. 27-79.

In this paper the author endeavours to define and characterize genera introduced by Mr. Gill into literature.

- ✓ *Ctenolates*, g. n., Günther, P. Z. S. 1871, p. 320. B. 7; pseudobranchiæ; teeth villiform, in bands; teeth on the palatines and vomer; tongue smooth. The spinous dorsal is continuous with the soft, composed of ten spines. Præoperculum finely serrated behind, and with small denticulations on the lower limb; præorbital serrated. Scales small, strongly ctenoid.—*Ctenolates macquariensis* described as a new species, l. c. pl. 33 [identical with *Datnia ambigua*, Richardson].

Etheostoma nevisense described as a new species by Cope, P. Am. Phil. Soc. 1870, p. 261, North Carolina.

Pecilichthys vitreus, *sanguifluus*, *camurus*, *vulneratus*, and *ruflineatus* are described as new species by Cope, l. c. pp. 263-267, from Tennessee and North Carolina.

- ✓ *Boleosoma effulgens* (Girard) and ✓ *B. maculiceps* and ✓ *æsupus* are described by Cope, l. c. pp. 268-270, the latter as new.

- ✓ *Hypochomus* is a new generic name for *Cottogaster awantiacus* proposed by Cope, l. c. p. 449.

Anthias rhodopeplus and *Anthias chrysostictus*, spp. nn., Günther, P. Z. S. 1871, pp. 654, 655, pls. 55 and 56, Manado.

- ✓ [*Serranus*] *Epinephelus chalinus*, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 465, St. Martins.—*Epinephelus ordinatus*, sp. n., Cope, l. c. p. 466, Panama.
 ✓ —*Epinephelus brachysoma*, sp. n., Cope, l. c. p. 466, Rio Janeiro.

- ✓ *Serranus humeralis* (C. & V.) = *S. albomaculatus* (Jenyns), Günther, P. Z. S. 1871, p. 654.

- ✓ *Plectropoma crocota*, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 466, St. Martins.

- ✓ [*Plectropoma*] *Hypoplectrus maculiferus*, sp. n., F. Poey, Ann. Lyc. New York, x. 1871, p. 78, pl. 1, Cuba.

Plectropoma anthioides, sp. n., Günther, P. Z. S. 1871, p. 655, Manado.

- ✓ [*Rhynchicus*] *Eleutheractis coriaceus* is described by Cope as a new genus and species from St. Martins, Tr. Am. Phil. Soc. xiv. p. 467, fig. 3.

Mesoprion. Poey has discovered cases of hermaphroditism in *Mesoprion cynodon* and *chrysurus*. The male and female organs are intimately connected with each other, and can be easily distinguished by the difference in colour and granulation. Ann. Lyc. New York, ix. p. 309.

✓ *Mesoprion rosaceus* and *Ocyurus lutjanoides* are described as new Cuban species by Poey, *l. c.* pp. 317, 319.

[*Mesoprion*] *Lutjanus cubera* is described as a new Cuban species by F. Poey, *l. c.* x. 1871, p. 75.

✓ *Mesoprion*. Mr. Cope describes as new species (Tr. Am. Phil. Soc. xiv.) :—
✓ *Ocyurus rygersmæi*, St. Kitts, p. 468, fig. 4; *Lutjanus* (or *Ocyurus*) *torridus*, St. Kitts, p. 469, fig. 5; and *Lutjanus brachypterus*, Bahamas, p. 470.

Priacanthus meyeri, sp. n., Günther, P. Z. S. 1871, p. 656, Manado.

Ambassis miops, sp. n., Günther, *l. c.* p. 655, Cook's Islands.

✓ *Apogon savayensis*, sp. n., Günther, *l. c.* p. 656, Samoa Islands and Celebes.

✓ *Centrarchidæ* (Cope). Prof. Cope makes some observations on the systematic arrangement of the genera adopted by him, characterizes species of *Lepomis*, and describes as new *Lepomis purpurescens* [sic], from North Carolina, and *Lepomis peltastes*, from the Huron River. P. Am. Phil. Soc. 1870, pp. 451-454.

PRISTIPOMATIDÆ.

Pristipoma manadense, sp. n., Günther, P. Z. S. 1871, p. 657, Manado.

Histiopterus labiosus, sp. n., Günther, *l. c.* p. 658, pl. 59, South Australia.

Diagramma obscurum, sp. n., Günther, *l. c.* p. 657, pl. 58, Feejee Islands.

SQUAMIPINNES.

✓ *Tholichthys* having proved to be the young of some Squamipinnate fish, Dr. GÜNTHER expresses it as his opinion that all the fishes of this family appear to have a *Tholichthys* stage. He describes and figures the young of *Chatodon citrinellus*, and a second *Tholichthys* form, reminding us of *Hemiochus*. A. & M. N. II. 1871, viii. pp. 318-320.

Chatodon miliaris from Celebes described by Günther, P. Z. S. 1871, p. 658.

SCORPÆNIDÆ.

Sebastes rhodochrous, sp. n., Günther, P. Z. S. 1871, p. 659, Manado.

✓ *Synanceia verrucosa*, named "Lassie" at the Mauritius, is a highly poisonous fish; the poison-organs are the dorsal spines, each being provided with a poison-bag at its base. Le Juge, Trans. R. Soc. Maurit. 1871, v. pp. 19-24.

✓ *Agriopus torvus*. Historical remarks by Günther, *l. c.* p. 659.

TEUTHIDIDÆ.

Dr. KLUNZINGER considers the separation of this family from the *Acronuridæ* to be justified. Verh. z.-b. Ges. Wien, 1871, p. 501.

He describes four known species from the Red Sea, *l. c.* pp. 502-504.

BERYCIDÆ.

✓ [*Beryx*] *Rhinoberyx chryseus*, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 464, St. Croix.

✓ *Holocentrum sicciferum* is described as a new species from the Bahamas by Cope, *l. c.* p. 465.

✓ *Holocentrum microstoma* probably the same as *H. tahiticum*. Günther, P. Z. S. 1871, p. 660.

Holocentrum diplocephalus, sp. n., Günther, *l. c.* pl. 60, Samoa Islands.

- ✓ *Rhynchichthys* is probably the young of *Holocentrum*. Günther, A. & M. N. H. 1871, viii. p. 320.

KURTIDÆ.

- ✓ *Pempheris mangula* = *P. otaitensis*, according to Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 469.
- ✓ *Pempherichthys*, g. n., Klunzinger, l. c. p. 470, distinguished from *Pempheris* by a naked anal fin and ctenoid scales.
- Pempherichthys güntneri*, sp. n., Klunzinger, l. c., Red Sea.

XIPHIIDÆ.

- GRAY, J. E. On the injury inflicted on ships by the Broad-finned Sword-fish of the Indian Ocean. A. & M. N. H. 1871, viii. pp. 338, 339.

ACRONURIDÆ.

- Acanthurus*. Dr. Klunzinger describes eight known species from the Red Sea, Verh. z.-b. Ges. Wien, 1871, pp. 504-510.
- ✓ *Acronurus* and *Kevis* are probably the young of *Acanthurus* or *Naseus*. Günther, A. & M. N. H. 1871, viii. p. 320.
- Acanthurus aterrimus*, sp. n., Günther, P. Z. S. 1871, p. 660, Samoa Islands.
- Acronurus lineolatus* is mentioned as a new species from the Red Sea by Klunzinger, l. c. p. 511.
- Naseus vomer*, sp. n., Klunzinger, l. c. p. 514, Red Sea.

CARANGIDÆ.

- ✓ *Caranx*. Dr. Klunzinger (Verh. z.-b. Ges. Wien, 1871,* pp. 453-466) distinguishes 21 species from the Red Sea, the greater part of which are described. The author differs in many points of synonymy from his predecessors, and describes as *new species* the following:—*C. rhabdolepis*, p. 457, *C. elongatus*, p. 458, *C. brevicarinatus* and *C. bleekeri*, p. 461.
- Chorinemus*. On the Red-Sea species see Klunzinger, l. c. pp. 447, 448.
- ✓ *Seriola aureovittata* (Schleg.) described by Klunzinger, l. c. p. 450.

NOMEIDÆ.

- Cubiceps multiradiatus*, sp. n., Günther, P. Z. S. 1871, p. 661, pl. 61, Manado.

CYTTIDÆ.

- ✓ *Zeus faber*. A large specimen from the Norwegian coast described by Rasch, Forh. Selsk. Christian. 1871, pp. 500-502.

SCOMBRIDÆ.

- ✓ *Scomber kanagurta* = *Sc. chrysozonus* (Rüpp.), according to Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 441.
- ✓ *Pelamys nuda* described by Klunzinger, l. c. p. 443.
- ✓ *Pelamys sarda* on the coast of Scandinavia. Malm, Öfv. Sv. Akad. 1870, p. 837.

TRACHINIDÆ.

Aphritis gobio. Notes by Cunningham, Trans. Linn. Soc. xxvii. p. 469. ✓

BATRACHIDÆ.

Batrachus cirrhosus, sp. n., Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 500, Red Sea.

PEDICULATI.

Dr. LÜTKEN directs attention to an error committed by some ichthyologists, who denied the presence of pseudobranchiæ in this family. Overs. Dan. Selsk. 1871, p. 65.

✓ *Oneirodes eschrichtii*, g. et sp. n., Lütken, l. c. pp. 56-74, tab. 2. Differs from *Melanocetus* in having a horizontal mouth and the dorsal formula 1/1/3. Greenland.—The author mentions also that the so-called palatine and pterygoid teeth of *Melanocetus* belong in reality to the upper pharyngeals, as is also the case with *Oneirodes*.

✓ *Himantolophus grønlandicus* (Reinhardt) compared with *Ceratias*. Lütken, l. c. p. 70.

✓ *Lophius piscatorius*. The spawn has been observed as a floating sheet of mucus, of from some sixty to one hundred square feet. S. F. Baird, Amer. Nat. 1871, v. p. 785.

COTTIDÆ.

✓ *Trigla [pini] cuculus* described from Scandinavian specimens by Malm, Öfv. Sv. Akad. 1870, p. 825.—The author has confirmed the view of several ichthyologists, that ✓ *T. gurnardus* and ✓ *T. blochii* [*cuculus*] are the same species. *Ibid.* p. 829.

✓ *Dactylopterus chirophthalmus* (Blkr.) is the young of *D. orientalis*. Günther, P. Z. S. 1871, p. 663.

Platycephalus cinereus, sp. n., Günther, l. c. p. 661, South Australia.

CATAPHRACTI.

Peristethus liorhynchus, sp. n., Günther, P. Z. S. 1871, p. 663, pl. 62, Manado. — *Peristethus engyceros*, sp. n., Günther, l. c. (with woodcut), Sandwich Islands.

✓ *Peristedion micronemus* is described as a new species from Cuba by Poey, Ann. Lyc. N. H. New York, ix. 1870, p. 321.

COMEPHORIDÆ.

✓ *Comephorus baicalensis* has five pyloric appendages. Günther, A. & M. N. H. 1871, viii. p. 292.

GOBIIDÆ.

Gobius. Dr. Klunzinger (Verh. z.-b. Ges. Wien, 1871, pp. 471-479) describes 13 species from the Red Sea, of which *Gobius koseirensis*, p. 474, is new. — *Gobius echinocephalus* is said to be provided with canine teeth, and therefore not distinct from *G. amiciensis*, p. 475.—*Gobius capistratus* = *Gobius ophthalmotenia*, p. 476.

Gobius mucosus, sp. n., Günther, P. Z. S. 1871, p. 663, pl. 63. fig. A, Adelaide.

—*Gobius platystoma*, sp. n., Günther, *l. c.* p. 664, pl. 63. fig. B, North-eastern Australia.—*Gobius leucostictus*, sp. n., Günther, *l. c.* p. 664, pl. 63. fig. C, Tonga Islands.—*Gobius elapoides*, sp. n., Günther, *l. c.* p. 665, pl. 63. fig. D, Japan?

✓ *Gobius microps* (Kröy.) described by Malm, *Öfv. Sv. Akad.* 1870, p. 844; it is allied to *Gobius pictus* (Malm, 1865) = *G. jeffreysii* (Gthr. 1867), *ibid.* p. 848.

Gobius rhodopterus in fresh waters of Algeria. Playfair, A. & M. N. II. 1871, viii. p. 386.

Apocryptes (*Gobiichthys*, subgen. n.) *petersii*, sp. n., Klunzinger, *l. c.* p. 479, Red Sea.

Gobiodon citrinus, sp. n., Klunzinger, *l. c.* p. 480, Red Sea.

Gobiosoma. Dr. Klunzinger (*l. c.*) describes *G. diadematum* (Rüpp.), p. 483, and *Gobiosoma vulgare*, sp. n., p. 484, both from the Red Sea.

✓ *Eleotris*. Mr. Cope (*Tr. Am. Phil. Soc.* xiv, p. 473) describes as new species ✓ *Culius perniger*, from St. Martins, and ✓ *Culius amblyopsis*, from Surinam.

Eleotris prasinus and *Eleotris polyzonatus*, spp. nn., Klunzinger, *l. c.* pp. 481, 482, Red Sea.

✓ *Callionymus lyra*. Male and female figured by Darwin, *Descent of Man*, ii. p. 8.

Callionymus cookii, sp. n., Günther, P. Z. S. 1871, p. 665, Cook's Islands.

BLENNIIDÆ.

Blennius. Dr. Klunzinger (*Verh. z.-b. Ges. Wien*, 1871) describes the following species from the Red Sea:—*Blennius hypenetes*, sp. n., p. 492; *Blennius jugularis*, sp. n., p. 493; *Blennius cornifer* (Rüpp.), p. 493; and *Blennius cyclops* = *Salarias cyclops* (Rüpp.) = *Blennius semifuscatus* (Rüpp.), p. 494.

✓ *Blennius gentilis* (California) found at Rio Janeiro by Cunningham, *Trans. Linn. Soc.* xxvii. p. 470.

2 — *Blennius sordidus* (Sandwich Islands) found in the Bay of Coquimbo by Cunningham, *l. c.*

Petroscirtes. Dr. Klunzinger (*l. c.*) describes *P. tapeinosoma* (Blkr.) and *P. filamentosus* (C. & V.), p. 495; *P. mitratus* (Rüpp.) = *P. barbatus* (Ptrs.), p. 496; *P. ancydon* (Rüpp.), p. 497, and *Petroscirtes* (*Enchelyurus*) *kraussii*, sp. n., p. 497: all from the Red Sea.

Salarias. Dr. Klunzinger (*l. c.* pp. 486–492) describes nine species from the Red Sea. He gives a lengthy account of the varieties of *S. quadricornis*, one of which is the *S. rivulatus* of Rüppell (p. 486).

✓ [*Clinus*] *Labrisomus biguttatus*, sp. n., Cope, *Tr. Am. Phil. Soc.* xiv. p. 473, Bahamas.

Cristiceps argentatus in an artesian well on the High Plateaux of Algeria. Playfair, in A. & M. N. H. 1871, viii. p. 387.

Tripterygium obtusirostre, sp. n., Klunzinger, *l. c.* p. 498, Red Sea.—*Enneapterygius pusillus* (Rüpp.) belongs to the same genus, *Id. ibid.*

Pataecus subocellatus, sp. n., Günther, P. Z. S. 1871, p. 655, pl. 64, South Australia.

ATHERINIDÆ.

Atherina rissoi, or a species allied to it, from fresh waters in Algeria, described by Playfair and Letourneux, A. & M. N. H. 1871, viii. p. 387.

Atherinichthys latilavaria and *A. microlepidota* probably identical, Cunningham, Trans. Linn. Soc. xxvii. p. 471. ✓

Labidesthes, g. n., proposed by Cope for *Chirostoma sicculum* (see Zool. Record, ii. p. 192), P. Am. Phil. Soc. 1870, p. 455, fig. 1. ✓

MUGILIDÆ.

Myrus leuciscus, sp. n., Günther, P. Z. S. 1871, p. 666, pl. 65. fig. A, Cook's Islands.

GASTEROSTEIDÆ.

Gasterosteus pungitius. On its nidification, Landois in Zool. Gart. 1871, pp. 1-10, with figure of nest; and on its distribution in Germany, Martens & Friedel, *ibid.* pp. 28-31. ✓

Gasterosteus brachycentrus in Algeria, Playfair & Letourneux, A. & M. N. II. 1871, viii. p. 388.

FISTULARIIDÆ.

Fistularia villosa, sp. n., Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 516, Red Sea.

CENTRISCIDÆ.

✓ *Centriscus gracilis* taken in the towing-net, between Monte Video and the Strait of Magellan, by Cunningham, Trans. Linn. Soc. xxvii. p. 471.

GOBIESOCIDÆ.

✓ *Gobiesox cerasinus* is described as a new species by Cope, Tr. Am. Phil. Soc. xiv. p. 473, St. Martin's.

LABYRINTHICI.

Osphromemus olfax. Prof. P. Döderlein has published a pamphlet, 'Rapporto della Commissione inviata a Siracusa dalla Società d'Acclimazione di Palermo coll'incarico d'esaminare se le condizioni fisiche del fiume Anapo fossero adatte per acclimarvi il pesce Gurami.' Palermo: 1867. 8vo, pp. 68, with a map and plate. It appears to have been reprinted from 'Atti della Società d'Acclimazione in Sicilia.' It is shown that Sicily would be well adapted for the acclimatization of this fish; but we are not aware that further steps have been taken in the matter.

TRACHYPTERIDÆ.

✓ *Trachypterus iris*. Its fat is phosphorescent. Panceri, Rendic. Acc. Napol. 1871, April. (See p. 90.)

ACANTHOPTERYGII PHARYNGOGNATHI.

✓ *Amphiprion bicinctus* = *A. clarkii*, according to Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 518.

Pomacentrus. Dr. Klunzinger (*l. c.*) mentions six species from the Red Sea, *Pomacentrus sulfureus* (p. 521) being new.

Glyphidodon. Dr. Klunzinger (*l. c.* pp. 523-529) describes seven species

from the Red Sea. He is inclined to reduce considerably the number of species in this genus, but describes one as new, viz. *Glyphidodon cingulum* (p. 526).

Helicastes dimidiatus, sp. n., Klunzinger, *l. c.* p. 529, Red Sea.

Xiphochilus robustus in the Red Sea, Klunzinger, *l. c.* p. 550.

Cirrhitlabrus heterodon, sp. n., Bleeker, Arch. Néerl. 1871, p. 326, fig. 1, Amboyna.

Chilinus. Dr. Klunzinger describes seven known species from the Red Sea. Verh. z.-b. Ges. Wien, 1871, pp. 552-556.

Chilinus bifasciatus, sp. n., Bleeker, Arch. Néerl. 1871, p. 327, fig. 3, Amboyna.—*Chilinus melanopleura* is figured, *ibid.* fig. 2.

Chilinus godeffroyi, sp. n., Günther, P. Z. S. 1871, p. 666, pl. 66, Tonga Islands.

Pseudochilinus hexactenia in the Red Sea, Klunzinger, *l. c.* p. 557.

✓ *PlatyGLOSSUS notopsis*. A black variety noticed by Günther, P. Z. S. 1871, p. 667.

PlatyGLOSSUS nigromaculatus, sp. n., Günther, *l. c.* p. 666, pl. 65, fig. B, Samoa Islands.

Novacula. Dr. Klunzinger describes four known species from the Red Sea. *L. c.* pp. 530-533.

✓ *Julis rueppellii* is a new name given by Klunzinger to *J. purpureus* (Rüpp., *nee* Forsk.); the true *J. purpureus* of Forskål is identical with *J. trilobatus* (Lacép.). Verh. z.-b. Ges. Wien, 1871, p. 536.

✓ *Coris cingulum* is stated to be the young state of *Coris aygula* by Klunzinger, *l. c.* p. 539.

✓ *Scarus hoplomystax* described as a new species from St. Martin's by Cope, Tr. Am. Phil. Soc. xiv. p. 462.

✓ *Cryptotomus*, g. n., Cope, Trans. Am. Phil. Soc. xiv. p. 462. Dentition of *Callyodon*; 11 dorsal spines; one row of scales on the cheek.—*Cryptotomus roseus*, sp. n., Cope, *l. c.* p. 462, fig. 1, St. Martin's.

Pseudoscarus. Dr. Klunzinger (*l. c.* pp. 559-570) distinguishes, beside several varieties, 10 species from the Red Sea; he differs from his predecessors in some points of the synonymy.

✓ *Pseudoscarus diadema*, considered to be a distinct species, and described by Cope, Tr. Am. Phil. Soc. xiv. p. 461.

✓ *Coridodax pullus* figured by Knox in T. N. Z. Inst. iii. p. 130, pl. 18, fig. 2. *Vertebræ* 27/21.

✓ *Chromides*. On sexual differences and nidification of some South-American species, see Darwin, Descent of Man, ii. pp. 13, 20.

✓ *Hemichromis subocellatus*, sp. n., Günther, P. Z. S. 1871, p. 667, pl. 67, fig. C, Gaboon.

✓ *Acara flavilabris*, sp. n., Cope, P. Am. Phil. Soc. 1870, p. 570, Pebas.

✓ *Crenicichla cyanonotus* and *Crenicichla lucius* are described as new species from Pebas by Cope, *l. c.* pp. 569, 570.

ANACANTHINI.

Dr. BLEEKER'S 24th part of the 'Atlas Ichthyologique,' which contains figures of a part of the East-Indian species of *Pleuronectidæ*, has been noticed above, p. 89.

✓ *Lycodes sarsii*, sp. n., Collett, Förh. Selsk. Christian. 1871, pp. 62-66, with a plate, Hardangersfjord, Norway.

✓ *Maynea*, g. n. Lycodid., Cunningham, Trans. Linn. Soc. 1871, xxvii. p. 471. Skin with small imbedded scales; vertical fins united; ventrals none. Jaws equally armed anteriorly with minute teeth placed rather far apart. A few minute teeth on the vomer and anteriorly on the palatines. Gill-opening narrow, the gill-membranes being attached to the isthmus; pseudo-branchiæ absent. No pyloric appendages.—*Maynea patagonica*, sp. n., Cunningham, l. c. p. 472, Otter Islands.—D. 115, A. 85.

Blenmodesmus, g. n. Lycodid., Günther, P. Z. S. 1871, p. 667. Body band-like, with rudimentary scales. Lateral line indistinct. Eye of moderate size. Snout pointed, lower jaw prominent. Small conical teeth in both jaws; palate smooth. Barbels none. Ventral fins reduced to two small and short filaments, jugular.—*Blenmodesmus scapularis*, sp. n., Günther, l. c. p. 667, pl. 67. fig. A, N.E. Australia.—D. + C. + A. 50 + 9 + 40.

✓ *Merluccius gayi* characterized by Cunningham, Trans. Linn. Soc. xxvii. ✓ p. 472.

Pseudophycis peregrinus, sp. n., Günther, P. Z. S. 1871, p. 669, Manado. —

✓ *Couchia* is probably the young of *Motella*. Günther, A. & M. N. H. 1871, viii. p. 320.

Brotula multibarbata from the Red Sea. Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 574.

Halidesmus, g. n. Brotulin., Günther, P. Z. S. 1871, p. 668. Body band-like, with minute scales. Three lateral lines on each side. Eye of moderate size. Dorsal and anal not continuous with the caudal. Ventral fins reduced to a pair of short filaments. A series of conical teeth in each jaw, none on the palate. Lower jaw rather projecting. Barbels none. Gill-opening wide.—*Halidesmus scapularis*, sp. n., Günther, l. c. pl. 67. fig. B, Port Natal.—D. 64, A. 48.

✓ *Haliophis guttatus*, described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, ✓ p. 575.

Coryphænoïdes novæ-zelandiæ, sp. n., Hector, T. N. Z. Inst. iii. p. 136, pl. 18. f. 1. [This is the type of a distinct genus, for which the Recorder proposes the name of *Macruonus*.]

✓ *Rhomboidichthys pantherinus* (?) described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 571.

✓ *Plagusia dipterygia* (Rüpp.) = *P. marmorata* (Blkr.) = *Pleuronectes bilineatus* (Bl.), according to Klunzinger, l. c. p. 573.

PHYSOSTOMI.

SILURIDÆ.

Mr. F. DAY has published some notes on the air-bladder of several Indian genera; he has found it similar in structure to that of the Loaches in *Hemipimelodus* and *Glyptosternum telchitta*. P. Z. S. 1871, pp. 286-289.—He has continued these examinations (*ibid.* pp. 703-721); and considering whether, "amongst these freshwater groups, any general law of distribution holds good which may furnish one with a clue to the reason for the existence of this osseous covering, whether such

is for protection or whether a part of the auditory apparatus," he comes to the following conclusions:—

"That the necessity for this bony capsule to the air-vessel is greater in India and Burmah than in the Malay archipelago.

"That this protection is for the freshwater and not for the marine Siluroids.

"That no true Indian, wholly marine Siluroid has its air-vessel enclosed in bone.

"That amongst the Siluroids of the hilly regions, those which ascend rivers having alpine sources have the air-vessel enclosed in bone.

"That those which ascend rivers not snow-fed do not appear of necessity to have their air-vessels thus protected."

Copidoglanis brevidorsalis. Prof. Troschel having received a female without ventral fins, regards their absence as a sexual character in this species, which peculiarity, he thinks, is evidence in favour of maintaining the genus *Neosilurus*. Wieg. Arch. 1871, pp. 276-280. [Having examined several specimens of this species, the Recorder is inclined to consider the apodal specimen examined by Prof. Troschel a case of individual monstrosity, as he has seen it also in *Erythrinus*, *Ophiocephalus*, &c.]

Callichrous egertonii, sp. n., Day, P. Z. S. 1871, p. 710, Punjab.

Ailichthys, g. n., Day, P. Z. S. 1871, p. 712. Differs from *Ailia* by the absence of ventral fins.—*Ailichthys punctata*, sp. n., Day, l. c. p. 713, Jumna.

Pseudotropius longimanus (Gthr.) and *Hypophthalmus taakree* (Sykes), Day, P. Z. S. 1871, p. 635, and Günther, *ibid.* p. 762.

Macrones nangra (H. B.) is described by Day, P. Z. S. 1871, p. 288; *Macrones carcio* (H. B.), *ibid.* p. 705; *Macrones tengara* and *tengana*, p. 706.

Macrones vittatus (Bl.) = *Bagrus oculus* (C. & V.) = *Bagrus montanus*, &c. (Jerd.) = *Macrones armatus* (Day), according to Day, P. Z. S. 1871, p. 706.

Macrones menoda (H. B.) = *Bagrus trachacanthus* (C. & V.), according to Day, l. c.

Akysis kurzii, sp. n., Day, P. Z. S. 1871, p. 703, Pegu.

Olyra. Mr. Day characterizes this genus, and describes as a new species *Olyra burmanica*, P. Z. S. 1871, p. 711.

Amiurus. Prof. Cope makes remarks on the species recognized by him, and describes as new *A. mispilliensis*, *A. lophius*, and *A. niveiventris*. P. Am. Phil. Soc. 1870, pp. 485-489.

Pimelodus. *Pseudorhamdia piscatrix* and *Rhamdiu cyanostigma*, spp. nn., Cope, l. c. p. 569, from Pebas.

Glyptosternum telchitta (H. B.) described by Day, P. Z. S. 1871, p. 288.

Glyptosternum modestum, sp. n., Day, l. c. p. 714, Jumna.

Hara elongata, sp. n., Day, P. Z. S. 1871, p. 704, Garrow Hills.

✓ *Doras pectinifrons*, sp. n., Cope, P. Am. Phil. Soc. 1870, p. 568, Pebas.

Arges and *Stygogenes*. *Pimelodus cyclopum* (Humb.) = *Arges brachycephalus* (Gthr.) = *Stygogenes humboldtii* (Gthr.), according to Putnam, Amer. Nat. 1871, v. p. 694. [Induced by the remarks made by Mr. Putnam, the Recorder has reexamined the typical specimens of the two latter species, especially with regard to the presence of a hard spine in the adipose fin of *Arges*. In an example 4 inches long no such spine can be found under the skin. Consequently, if Mr. Putnam's supposition is correct notwithstanding, we

should arrive at the following conclusions:—1. *Arges sabalo* could not be kept generically distinct from these fishes (as Mr. Putnam is inclined to keep it), inasmuch as doubts might be entertained of the *specific* distinctness of *A. sabalo* and *A. brachycephalus*. 2. The adipose fin would undergo extraordinary changes in these fishes during their growth: in examples up to 2 inches (*Stygogenes humboldtii*) it is very short, close to the caudal fin, and provided with a hard spine. In other examples (Mr. Putnam's specimen; the length is unfortunately not stated by Mr. Putnam) "the adipose fin is moderately long, reaching to the base of the upper caudal ray, with a short broad spine at its front base buried in the skin." Finally, in specimens from 4 to 9 inches (*A. brachycephalus*) the adipose fin extends from near the dorsal to the caudal, without a trace of hard spine. Such an extraordinary change is not without parallel in the class of fishes; but we should like to see further evidence in proof of this case.]

Plecostomus barbatus. Head of male and female figured by Darwin, Descent of Man, ii. p. 11.

Hypoptopoma bilobatum, sp. n., Cope, P. Am. Phil. Soc. 1870, p. 566, fig., Pebas.

Exostoma blythii. Note by Day, P. Z. S. 1871, p. 715.

Bunocephalus aleuopsis, sp. n., Cope, P. Am. Phil. Soc. 1870, p. 568, Pebas.

Eremophilus nutisii (Humboldt) has not been recognized by Giebel, who describes it as *Trachypoma marmoratum* (g. et sp. n.); the author was also not aware that the generic name proposed by him is preoccupied. Z. ges. Ntrw. 1871, iii. p. 97.

CYPRINIDÆ.

An important memoir, 'Sur les Cyprinoïdes de Chine,' has been published by Dr. BLEEKER in Verh. Akad. Amsterd. xii. 1871, p. 91, with 15 double plates. A preliminary notice appeared last year, and was referred to in Zool. Record, vii. p. 83. The author gives an historical sketch of the progress of our knowledge respecting this part of the Chinese fauna. Before this paper 50 species (the *Cobitidæ* not included) had been described, unfortunately many from Chinese drawings only; and to this number the author adds now 21 others, chiefly from the Yantsekiang, where the specimens were collected by Messrs. Daubry and the Abbé David. The Cyprinoids of China show a close affinity to those of Japan and Europe, whilst the forms most characteristic of the tropical parts of the Indian region have disappeared. The memoir is beautifully illustrated, apparently regardless of expense.

F. DAY, in a "Monograph of Indian Cyprinidæ," characterizes 24 known genera. J. A. S. B. 1871, p. 102.

Catostomus. Prof. Cope describes the following as new species (P. Am. Phil. Soc. 1870):—p. 467, *Placopharynx* (g. n.) *carinatus*; p. 470, *Ptychostomus papillosus* and *velatus*; p. 471, *P. collapsus* and *pidiensis*; p. 472, *P. coregonus*, *albus*, and *thalassinus*; p. 473, *P. robustus*; p. 474, *P. lachrymalis*; p. 477,

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P. crassilabris; p. 478, *P. breviceps* and *comus*. These descriptions are mixed with notes on previously described species.

Carpiodes. Prof. Cope (*l. c.*) describes as new species;—p. 480, *C. difformis*; p. 481, *C. cutisanterinus* and *C. selene*; p. 482, *C. grayi*; p. 484, *C. nummifer*; adding remarks on previously named species.

Cyprinus auratus. The osteology of monstrosities. Pouchet in Robin's Journ. Anat. 1870–71, pp. 561–569, pl. 17.

Cirrhhina anisura (M'Cl.) and *dyochilus* (M'Cl.) described by Day, J. A. S. B. 1871, p. 136.

(*Cyprinus*) *bata*. H. Buchanan's original drawing reproduced by Günther, P. Z. S. 1871, p. 765.

Dangilu bermorei (Blyth) described by Day, J. A. S. B. 1871, p. 134.

Gobio isurus (M'Cl.) described by Day, *l. c.* p. 142 [and proves to belong to *Dangila*].

Osteochilus. *Rohita rostellatus* (C. & V.) proves to belong to this genus, and is described by Day, J. A. S. B. 1871, p. 130.—*Osteochilus neilli* figured, *ibid.* pl. 9. fig. 5, *a, b*.

Labeo nandina (H. B.) = *Labeo macronotus* (M'Cl.), according to Day, J. A. S. B. 1871, p. 113.—*Labeo fimbriatus* (Bl.) = *L. leschenaultii* (C. & V.) = *Varicorhinus bobree* (Sykes), according to Day, *l. c.* p. 114.—*Labeo calbasu* (H. B.) = *Cirrhhinus affinis* (Jerdon) = *Tylognathus porcellus* (Heck.), according to Day, *l. c.* p. 116.—*Labeo cursa* (H. B.) = *L. microlepidotus* (C. & V.), according to Day, *l. c.*—*Labeo pontius* (Jerd.) = *Cirrhhinus rubropunctatus* (Jerd.), according to Day, *l. c.* p. 118.

Gobio bicolor of M'Clelland proves to be a *Labeo*, and is described by Day, *l. c.* p. 126.

Crossochilus reba. Mr. Day thinks that the *Chondrostoma gangeticum* (C. & V.) was intended for this species [as already suggested by the Recorder]. J. A. S. B. 1871, p. 142.

Crossochilus rostratus (Gthr.) and *Cyprinus bata* (H. B.), Day, P. Z. S. 1871, p. 636, and Günther, *ibid.* p. 764.

Gymnostomus macrolepis, sp. n., Bleeker, Verh. Akad. Amsterd. xii. 1871, p. 32, tab. 8. fig. 2, Yantsekiang.

Barbus. Bleeker (Verh. Akad. Amsterd. xii. 1871) describes three new species from the Yantsekiang:—*Barbodes sinensis*, p. 17, tab. 3. fig. 2; *Hemibarbus maculatus*, p. 19, tab. 4. fig. 3; and *Hemibarbus dissimilis*, p. 21, tab. 6. fig. 1.

Barbus fasciolatus (Günth. Fish. vii. p. 140). Dr. Bleeker proposes for this species the name of *B. guentheri*, *l. c.* p. 9 [but the name was changed by Günther himself into *semifasciolatus*, vii. p. 484].

Barbus. For Mr. Day's interpretations of the synonymy of Indian Barbels we refer to J. A. S. B. 1871, pp. 291–336.

Barbus (*Puntius*) *punjaubensis*, sp. n., Day, *l. c.* p. 334.

Barbus beavani (Gthr.) and *Cyprinus chagunio* (H. B.), Day, P. Z. S. 1871, p. 637, and Günther, *ibid.* p. 764.

Barbus callensis and *B. setifensis* described by Playfair and Letourneux, A. & M. N. II. 1871, viii. p. 392.—The authors confirm Dr. Günther's determination of *Barbus longiceps* as a Syrian species.

Thynnichthys harengula (C. & V.) described by Day, J. A. S. B. 1871, p. 283, pl. 21. fig. 3.

Schizothorax. Mr. Day describes the species of this genus, J. A. S. B. 1871, pp. 338-348.

Pseudogobio sinensis (Kner)=*Gobio rivularis* (Basil.), Bleeker, Verh. Ak. Amsterd. xii. 1871, p. 23, tab. 8. fig. 1.

Sarcochilichthys sinensis, sp. n., Bleeker, l. c. p. 31, tab. 4. fig. 2, Yantsekiang.

Saurugobio dumerilii and *Saurugobio dabryi*, spp. nn., Bleeker, l. c. p. 25, tab. 1. fig. 1, and p. 29, tab. 5, Yantsekiang.

Rhinogobio typus, sp. n., Bleeker, l. c. p. 29, tab. 3. fig. 1, Yantsekiang.

Ceratichthys labrosus and *Ceratichthys hypsinotus* are described as new species from North Carolina by Cope, P. Am. Phil. Soc. 1870, p. 458.

Hybopsis niveus, *Hybopsis chlorocephalus*, and *Hybopsis chiliticus* are described as new species from North Carolina by Cope, l. c. pp. 460, 461, 462.

Hemitremia vittata, g. et sp. n., Cope, l. c. p. 462, Tennessee.

Photogenys pyrromelas is described as a new species from North Carolina by Cope, l. c. p. 463.

Alburnellus altipinnis and *Alburnellus matutinus* are described as new species from North Carolina by Cope, l. c. pp. 464, 465.

Hybognathus osmerinus, described as a new species from New Jersey by Cope, Proc. Am. Phil. Soc. 1870, p. 466, is figured by Abbott, Am. Nat. 1871, iv. p. 717.

Amblypharyngodon mola (H. B.)=*A. pellucidus* (M'Cl.), according to Day, J. A. S. B. 1871, p. 284.—The same writer states that *Mola atkinsonii* (Blyth) is a distinct species, p. 285.

Semiplotus modestus figured by Day, l. c. 1871, pl. 21. fig. 1.

Xenocypris. Dr. Bleeker, l. c., describes four new species of this genus from the Yantsekiang:—*X. macrolepis*, p. 53, tab. 5. fig. 2; *X. tapeinosoma*, p. 55, tab. 11. fig. 1; *X. davidi*, p. 56, tab. 6. fig. 4; and *X. microlepis*, p. 58, tab. 9.

Leuciscus aethiops (Basil.)=*L. dubius* (Blkr.) described by Bleeker, l. c. p. 45, tab. 14. fig. 1.

Leuciscus callensis described by Playfair and Letourneux, A. & M. N. H. 1871, viii. p. 391.

Ctenopharyngodon idellus figured by Bleeker, l. c. p. 47, tab. 10. fig. 2; the author refers this genus to *Leuciscus*.

Achilognathus imberbis (Gthr.). The fish described and figured by Bleeker (l. c. p. 37, tab. 4. fig. 1) under this name appears to be a distinct species.

Rhodeus ocellatus figured by Bleeker, l. c. tab. 6. fig. 3. *Rhodeus sinensis*, described *ibid.* p. 35.

Acanthorhodeus. Of this genus, which we noticed in last year's Record, Dr. Bleeker (l. c.) describes three new species from the Yantsekiang:—*A. macropterus*, p. 40, tab. 2. fig. 2; *A. guichenoti*, p. 41, tab. 13. fig. 2; and *A. hypselonotus*, p. 43, tab. 11. fig. 2.

Aspidoparia sardina (Heck.)=*Cyprinus morar* (H. B.), and *Aspidoparia jaya* (H. B.)=*Leuciscus margarodes* (M'Cl.), described by Day, J. A. S. B. 1871, pp. 361, 362.

Bariilus acutipinnis, sp. n., Bleeker, l. c. p. 81, tab. 13. fig. 1, Yantsekiang.

Squaliobarbus curriculus figured by Bleeker, l. c. p. 48, tab. 13. fig. 3.

Hypophthalmichthys molitrix and *nobilis* figured by Bleeker, l. c. p. 83, tab. 12. fig. 4, and p. 85, tab. 14. fig. 2.

Chanodichthys mongolicus figured by Bleeker, *l. c.* p. 62, tab. 2. fig. 3.

Hemiculter leucisculus. Under this name specimens believed to be the *Culter leucisculus* (Basil.) are described and figured by Bleeker, *l. c.* p. 76, tab. 2. fig. 1.

Chanodichthys bramula is generically separated by Bleeker as *Parabramis*, *l. c.* p. 78, tab. 7. fig. 2.

Pseudobrama dumerili, sp. n., Bleeker, *l. c.* p. 60, tab. 7. fig. 1, Yantsekiang.

Luciobrama typus, sp. n., Bleeker, *l. c.* p. 51, tab. 1. fig. 2, Yantsekiang.

Culter. Dr. Bleeker (*l. c.*) describes four species from the Yantsekiang: *C. ilishæformis*, sp. n., or perhaps = *C. erythropterus* (Basil.), p. 67, tab. 10. fig. 1; *C. brevicauda* (Gthr.), p. 69, tab. 11. fig. 3; *C. dabryi*, sp. n., p. 70, tab. 12. fig. 2; *C. hypselonotus*, sp. n., p. 72, tab. 8. fig. 3; and *C. oxycephalus*, sp. n., p. 74, tab. 5. fig. 3.

Psilorhynchus balitora described by Day, *l. c.* p. 106, pl. 9. fig. 1.

Cobitis tænia. Prof. Canestrini has found that the male has the upper pectoral ray enlarged. *Rivista Scient.-Industr.* 1871, Jun. fasc. iii., translated in *Arch. für Naturg.* 1871, pp. 222-224; also in *Zeitschr. wiss. Zool.* 1871, xxi. pp. 538, 539. [It is the same sexual difference which has been known for some time in an Indian Loach (*Lepidocephalichthys thermalis*). See Günther, *Fish.* vii. p. 364.]

CHARACINIDÆ.

Holotaxis, g. n., Cope, *P. Am. Phil. Soc.* 1870, p. 563. *Pyrrhulina*, with maxillary teeth.—*Holotaxis melanostomus*, sp. n., Cope, *l. c.*, Pebas.

Plethodectes, g. n., Cope, *P. Am. Phil. Soc.* 1870, p. 563. Differs from *Piabucina* in the dentition, having the intermaxillary teeth in a double series, the outer teeth being conical. Mandibular teeth tricuspid, in an outer series, with two conical teeth in the middle behind that series.—*Plethodectes erythrusus*, sp. n., Cope, *l. c.* c. fig., Pebas.

Tetragonopterus. Prof. Cope (*P. Am. Phil. Soc.* 1870, pp. 559, 560) describes the following as new species from the River Amazons:—*T. orientalis*, *T. stilbe*, *T. hauxwellianus*, *T. pectinatus*, and *Hemigrammus robustulus*.

Stethaprion, g. n., Cope, *P. Am. Phil. Soc.* 1870, p. 562. Appears to differ from *Tetragonopterus* in its small scales.—*Stethaprion erythrops*, sp. n., Cope, *l. c.* c. fig., Pebas.—D. 12, A. 40, L. lat. 61.

Nannathiops, g. n. *Tetragonopterin.*, Günther, *P. Z. S.* 1871, p. 669. Dorsal fin in the middle of the body, above the ventrals; anal short; adipose fin small. Scales of moderate size. Belly rounded. Lateral line present. Mouth narrow. Teeth small, uniserial, with a simple notch. Maxillary and palate toothless.—*Nannathiops unitaniatus*, sp. n., Günther, *l. c.* p. 670, pl. 65. fig. C, Gaboon.

Odontostilbe, g. n., Cope, *P. Am. Phil. Soc.* 1870, p. 566. Differs from *Chirodon* in having a complete lateral line and a few maxillary teeth.—*Odontostilbe fugitiva*, sp. n., Cope, *l. c.* Pebas.

Ræboides bicornis, sp. n., Cope, *l. c.* p. 564, Pebas.—*Anacyrtus tectifer*, sp. n., Cope, *l. c.* p. 565, Pebas.—*Cynopotamus gulo*, sp. n., Cope, *l. c.*, Pebas. *Myletes lippincottianus*, sp. n., Cope, *l. c.* p. 561, c. fig.

CYPRINODONTIDÆ.

- ✓ *Cyprinodon dispar* described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 587.
- ✓ *Cyprinodon iberus* distinct from *C. calaritanus*, described by Playfair & Letourneux, A. & M. N. II. 1871, viii. p. 390.
- ✓ *Tellia apoda* described by Playfair & Letourneux, l. c.
- ✓ *Lycocyprinus* (Ptrs.) = *Epiplatys* (Gill); *Epiplatys sexfasciatus* (Gill) not = *Lycocyprinus sexfasciatus* (Ptrs.), which = *Haplochilus infrafasciatus* (Gthr.), according to Cope, P. Am. Phil. Soc. 1870, p. 457.
- ✓ *Haplochilus melanops* is described as a new species by Cope, l. c., North Carolina.
- ✓ *Fundulus nisorius* is described as a new species by Cope, l. c., p. 456, Gaboon.

SCOMBRESOCIDÆ.

Dr. KLUNZINGER proposes to place these fishes as a suborder of *Physostomi*, under the name of *Physostomi pharyngognathi*. Verh. z.-b. Ges. Wien, 1871, p. 576.

Dr. BLEEKER's 24th part of the 'Atlas Ichthyologique,' which contains the text of the description of the East-Indian species of *Scombresocidæ*, has been noticed above, p. 89.

Belone. Dr. Klunzinger (l. c.) describes the following from the Red Sea:—*B. platura* (Rüpp.) ? = *B. carinata* (C. & V.), p. 577; *B. chloram*, p. 578; *B. koseirensis*, sp. n., p. 579; *B. robustus*, *ibid.*; *B. appendiculatus*, sp. n., p. 580; and *B. melanostigma* (C. & V.) = *B. schismatorhynchus* (Blkr.), p. 581.

Belone punctulata, sp. n., Günther, P. Z. S. 1871, p. 670, Manado.

✓ *Belone diplotænia*, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 481, St. Martin's.

Hemirhamphus. Dr. Klunzinger (l. c. pp. 582-585) has determined the species collected by him in the Red Sea as *H. far*, *marginatus*, *dussumieri*, and *gamberur*, and directs attention to various discrepancies between his descriptions and those of some of his predecessors.—Note on *Hemirhamphus dispar* from Mossambique by Peters, MB. Ak. Berl. 1871, p. 32.—*Hemirhamphus gamberur* described by Günther, P. Z. S. 1871, p. 671.

Hemirhamphus acutus, sp. n., Günther, l. c. p. 671, Cook's Islands.

Exocætus bahiensis, from the Red Sea, Klunzinger, l. c. p. 585. The same author describes as a new species *Exocætus gryllus* [but this is identical with *E. atrodorsalis*, Gthr.].

✓ *Exocætus scylla*, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 481, Gulf of Mexico.

STERNOPTYCHIDÆ.

Argyrolepecus elongatus, sp. n., Esmark, Förh. Selsk. Christian. 1871, p. 489. The length of the body (without caudal) is more than twice its depth, and thrice the length of the head. Angle of the præoperculum with a spine bent forwards. Tail with 3 spines above and 1 below. D. 2/9, A. 15?—Chinese Sea.

Maurolicus tripunctulatus, sp. n., Esmark, Förk. Selsk. Christian. 1871, p. 489. The height of the body equals the length of the head, and is $3\frac{1}{2}$ in the total (without caudal). The base of the dorsal equal to the distance of

the extremity of the snout or of the base of the caudal from the vertical from the first anal rays. A series of black pigment-laminæ (lateral line) proceeds from the shoulder; on each side, from the vent to the root of the caudal, a series of five equidistant black laminæ; the first, second, and third of these laminæ include three silvery dots, the fourth two, and the fifth four. D. 9-10, A. 24?—Madagascar.

Maurolicus mucronatus, sp. n., Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 593, Red Sea.

SCOPELIDÆ.

Saurus erythræus, sp. n., Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 590, Red Sea.

Scopeus cæruleus, sp. n., Klunzinger, l. c. p. 592, Red Sea.

STOMIATIDÆ.

Astronesthes martensii, sp. n., Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 594, Red Sea.

SALMONIDÆ.

✓ *Salmo salar*. Observations made in Bohemia by A. Fritsch, in Arch. Landesdurchf. Böhm. ii. 1871, reprinted Zool. Gart. 1871, pp. 227-229.

✓ *Osmerus*. ✓ Prof. Cope distinguishes from *O. viridescens* (= *O. sergeanti*, Norris) an *O. spectrum* and *O. abbotti* as new species from Maine. P. Am. Phil. Soc. 1870, p. 490.

✓ *Retropinna richardsonii* figured by Hector in T. N. Z. Inst. iii. pl. 18. fig. 3. — *Retropinna osmeroides*, sp. n., Hector, l. c. p. 134, pl. 19. fig. 1, New Zealand.

✓ *Thymallus vulgaris*. A detailed account of the natural history of the Grayling, by J. Warnimont. Publicat. de l'Institut. de Luxemb. xi. pp. 1-48.

HAPLOCHITONIDÆ.

✓ *Prototroctes oxyrhynchus* (Gthr.) described by Hector as ✓ *Retropinna upekororo* (sp. n.), T. N. Z. Inst. iii. p. 134, pl. 18. fig. 4, & pl. 19. fig. 2 (*Coregonus opokororo*).

MORMYRIDÆ.

✓ *Mormyrus lepturus*, sp. n., Günther, P. Z. S. 1871, p. 670, pl. 69. fig. B, Gaboon.

CLUPEIDÆ.

Dr. BLEEKER's 24th part of the 'Atlas Ichthyologique,' which contains figures of a part of the East-Indian species, has been noticed above, p. 89.

Engraulis heterolobus (Rüpp.) and *Engraulis baelama* (Forsk.) described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, pp. 596, 597; and the latter species described also by Günther, P. Z. S. 1871, p. 671.

Clupea. Dr. Klunzinger (l. c. pp. 598-601) has determined species collected by him in the Red Sea as *C. liogaster*, *sirm*, *kowal*, *venenosa*, and *quadrinaculata*. His account should be consulted on account of the synonymy.

Clupea sprattus on the coast of Tasmania. Günther, P. Z. S. 1871, p. 672.

Spratelloides gracilis. A fish from the Red Sea, so determined, is described by Klunzinger, *l. c.* p. 601.

MURÆNIDÆ.

[*Anguilla australis*?]. "On the absence of the Eel from the upper waters of the Waiou-ua and its Tributaries" (New Zealand), by W. T. L. Travers, T. N. Z. Inst. iii. pp. 120-122.

Anguilla obscura, sp. n., Günther, P. Z. S. 1871, p. 673, Feejee Islands.

✓ *Conger cinereus* described by Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 607.

Pæciloconger, g. n. Anguillin., Günther, P. Z. S. 1871, p. 673. Scaleless. Head pointed, without muciferous cavities. Cleft of the mouth extending to below the eye. All the teeth in villiform bands. Pectoral and vertical fins well developed, the dorsal commencing in advance of the gill-opening. Nostrils small, the anterior without tube. Eyes large, without orbital fold. *Pæciloconger fasciatus*, sp. n., Günther, *l. c.* pl. 68, Manado.

✓ *Chilorhinus suensonii* redescribed by Cope, Tr. Am. Phil. Soc. xiv. p. 482.

Murænichthys gymnotus (Blkr.) from the Red Sea, Klunzinger, *l. c.* p. 608.

Ophichthys arenicola is described as a new species from the Red Sea by Klunzinger, *l. c.* p. 609.

Ophichthys melanotenia occurs in the Red Sea, Klunzinger, *l. c.* p. 612.

Ophichthys stenopterus, sp. n., Cope, Tr. Am. Phil. Soc. xiv. p. 482, Japan.

✓ *Holopterura*, g. n., Cope, Tr. Am. Phil. Soc. xiv. p. 482. "Sphagebranchus with caudal fin."—*Holopterura plumbea*, sp. n., Cope, *l. c.*, West Africa.

Muræna. Dr. Klunzinger (*l. c.* pp. 613-620) describes ten species from the Red Sea. *M. hemprichii*, p. 613, and *M. corallina*, p. 614, spp. nn.—*M. geometrica* (Rüpp.) = *M. bilineata* (Rüpp.) is a distinct species, p. 617.

✓ *Muræna chilensis*, sp. n., Günther, P. Z. S. 1871, p. 674.—*Muræna tanioides*, sp. n., Günther, *l. c.*, Savay.

✓ *Gymnothorax nigrocastaneus* is described as a new species by Cope, Tr. Am. Phil. Soc. xiv. p. 483, St. Martin's. ✓ *Gymnothorax obscuratus* is described as a new species from Cuba by Poey, Ann. Lyc. N. H. New York, ix. 1870, p. 320.

LOPHOBRANCHII.

Prof. CANESTRINI believes that in Lophobranchs a coitus takes place, during which the ova are transferred from the female to the male, which fecundates them after they have entered the ovigerous sac. [If this be so, a concourse of the sexes might be assumed also in the Siluroid genus *Aspredo*.] In young *Hippocampus* he has discovered a caudal fin, as Fries also had found rudiments of fins in young *Nerophis*. The author relies on these facts to establish the genealogy of some of the genera: *Nerophis* is descended from *Syngnathus*, and *Hippocampus* from *Calamostoma*; besides, *Nerophis* is a genus in process of formation. The paper is concluded with a descriptive and analytical catalogue of the Lophobranchs of the Adriatic—*Hippocampus* with 2, *Siphonostomus* with 2, *Syngnathus* with 6, and *Nerophis* with 2 species. Att. Ist. Venet. xvi. 1871, or Bibl.

Univ. 1871, July 15, pp. 355-358; or A. & M. N. H. 1871, viii. pp. 215-217.

Solenostoma cyanopterum occurs in the Red Sea. Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 654.

Syngnathus. Dr. Klunzinger describes four species from the Red Sea, l. c. pp. 648-652.—*Syngnathus flavofasciatus* (Rüpp.) = *S. conspicillatus* (Jen.).

✓ *Syngnathus algeriensis* described by Playfair and Lotourneux, A. & M. N. H. 1871, viii. p. 393.

✓ *Hippocampus fuscus* (Rüpp.) described by Klunzinger, l. c. p. 653.

PLECTOGNATHI.

Balistes. Dr. Klunzinger describes 8 known species from the Red Sea. Verh. z.-b. Ges. Wien, 1871, pp. 621-631. *B. rivulatus* (Rüpp.) = *B. fuscus* (Bl.).

✓ *Balistes*. Mr. Cope (Tr. Am. Phil. Soc. xiv. p. 478) describes as new species from St. Martin's *B. moribundus*, *B. asperrimus*, and *B. melanopterus*.

Monacanthus. On sexual differences, Darwin, Descent of Man, ii. p. 12.

✓ *Monacanthus*. Mr. Cope (Tr. Am. Phil. Soc. xiv.) describes the following as new species: ✓ *M. davidsonii*, Florida Reef, p. 476; *M. spilnotus*, Gulf of Mexico, p. 476; *M. amphioxys*, St. Martin's, p. 477; *M. homopterus*, Australia, p. 477; *M. hypargyreus*, Australia, p. 477; and believes he has recognized *M. (Balistes) sandwichensis* (Q. & G.), p. 477.

✓ *Ostracion trigonus*. The young state is described by Cope as a new species, *Ostracium expansum*. Tr. Am. Phil. Soc. xiv. p. 474, figs. 9 & 10.

Cybotium fissum is described as a new species by Cope, l. c. Indian or Pacific Ocean?

✓ *Ostracion cyanurus* (Rüpp.) is a distinct species according to Klunzinger, Verh. z.-b. Ges. Wien, 1871, p. 636.

Tetrodon. Dr. Klunzinger describes nine species from the Red Sea, Verh. z.-b. Ges. Wien, 1871, pp. 637-647, one being regarded as new, *Tetrodon pusillus*, p. 645. He considers *T. margaritatus* (Rüpp.) and *T. papua* (Blkr.) to be identical, p. 646.

Tetrodon pleurostictus, sp. n., Günther, P. Z. S. 1871, p. 674, pl. 69. fig. A, N.E. Australia.

Tetrodon florealis from the Sandwich Islands, and *Arothron ophryas* from the Navigator Islands, are described as new by Cope, l. c. p. 479.

✓ *Orthogoriscus*. *Ostracion boops* (Richards.) represents a still younger state of *Orthogoriscus* than *Acanthosoma*: Lütken, A. & M. N. H. 1871, viii. p. 320.

Orthogoriscus mola in the Red Sea, Klunzinger, l. c. p. 648. An adult example figured by W. Andrews, P. Dublin Soc. vi. pl. 2.—On the vena portæ renalis and other anatomical points, also measurements of a large example: Jourdain, Comp. Rend. 1871, lxxiii. pp. 1225-1229.

✓ *Orthogoriscus oblongus*. An example from the Irish coast described and figured by W. Andrews. P. Dublin Soc. vi. pp. 56-61, pl. 1.

CYCLOSTOMATA.

Geotria allporti, sp. n., Günther, P. Z. S. 1871, p. 675, pl. 70, Tasmania.